AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-61. (Cancelled)

62. (Currently Amended) A composition comprising: ~~a biologically active~~ an isolated Tat protein, ~~a~~ fragment ~~thereof~~ or mutant ~~thereof, or a combination thereof, in a non-aggregated and non-oxidized form and in a form suitable for administration to a human,~~ in combination with a suitable excipient and/or diluent, wherein said isolated Tat protein, fragment or mutant~~, or combination thereof,~~ is biologically active, as shown by the ability of said isolated Tat protein, fragment or mutant to

(i) ~~1) is~~ become internalized by activated endothelial cells or dendritic cells, which internalization is determined by (a) incubating ~~the~~ activated endothelial cells or ~~the~~ dendritic cells with ~~10 ng/ml~~ up to 1 µg/ml of said isolated Tat protein, fragment or mutant~~, or combination thereof,~~ which is labeled with rhodamine, and (b) detecting the presence or absence of rhodamine in the activated endothelial cells or ~~the~~ dendritic cells by fluorescence microscopy; or ~~and 2) performs at least one action selected from the group consisting of the following actions: i)~~

(ii) ~~activates~~ activate the proliferation, migration, and invasion of Kaposi's sarcoma (KS) cells or cytokine-activated endothelial cells in culture when said Tat protein, fragment or mutant~~, or combination thereof,~~ is present at a concentration of ~~10 ng/ml~~ up to 1 µg/ml; or

(iii) ~~ii) activates~~ activate virus replication when said isolated Tat protein, fragment or mutant is added to HIV-1 infected cells at a concentration of up to 1 µg/ml, which activation is determined ~~as measured~~ by (a) the rescue of Tat-defective proviruses in HLM-1 cells after the addition of ~~exogenous protein and/or~~ said isolated Tat protein, fragment or mutant, or (b) the transactivation of HIV-1 gene expression in cells transfected with HIV-1 promoter-reporter plasmid~~;~~ ~~and iii) induces in mice the development of KS-like lesions in the presence of angiogenic factors or inflammatory cytokines,~~

wherein said composition is suitable for administration to a human.

63. (Currently Amended) The composition ~~according to~~ of claim 62, wherein ~~the biologically active~~ said isolated Tat protein, fragment or mutant~~, or combination thereof,~~ is purified.

64. (Cancelled)

65. (Currently Amended) The composition ~~according to~~ of claim 62, ~~which comprises biologically active~~ wherein said isolated Tat protein, fragment or mutant is a wild type Tat protein.

66. (Currently Amended) The composition ~~according to~~ of claim 62, 63 or 65, wherein the administration is selected from the group consisting of mucosal, nasal, oral, vaginal, rectal, intramuscular, subcutaneous, intradermal, systemic, and local administration.

67. (Cancelled)

68. (Currently Amended) The composition ~~according to~~ of claim 63, wherein said ~~biologically active~~ isolated Tat protein, fragment or mutant ~~thereof,~~ is purified by a method comprising performing heparin affinity chromatography.

69. (Currently Amended) The composition ~~according to~~ of claim 68, wherein said performing step is followed by steps of (a) lyophilizing ~~the biologically active~~ said isolated Tat protein, fragment or mutant, and (b) resuspending said lyophilized ~~biologically active~~ isolated Tat protein, fragment or mutant~~,~~ in a degassed buffer.

70-88. (Cancelled).

89. (Previously Presented) The composition of claim 62, 63 or 65 which further comprises a biologically acceptable fluid.

90. (Currently Amended) A product which is produced by a process ~~of~~ comprising lyophilizing the composition of claim 62, 63 or 65.

91. (Currently Amended) A product which is produced by a process ~~of~~ comprising lyophilizing the composition of claim 62, 63 or 65 and resuspending the lyophilized composition in a biologically acceptable fluid.

92. (Currently Amended) The composition of claim 65, wherein the amino acid sequence of said ~~biologically active isolated~~ wild type Tat protein consists of SEQ ID. No. 2.

93. (Currently Amended) The composition of claim 89, wherein the biologically acceptable fluid is serum, plasma, or one or more fractions thereof.

94. (Currently Amended) The composition of claim 91, wherein the biologically acceptable fluid is serum, plasma, or one or more fractions thereof.

95. (Previously Presented) The composition of claim 62, 63, 65, or 69 which further comprises an adjuvant.

96. (Previously Presented) The composition of claim 95 which further comprises a biologically acceptable fluid.

97. (Currently Amended) The composition of claim 95, wherein the adjuvant is RIBI, alum, or ISCOM, or a combination thereof.

98. (Currently Amended) The composition of claim 62, 63 or 65, wherein ~~in which~~ said ~~biologically active~~ isolated Tat protein, fragment or mutant~~, or combination thereof,~~ is bound to a delivery vehicle.

99. (Currently Amended) The composition of claim 98, wherein ~~in which~~ said delivery vehicle is a nanoparticle.

100. (Currently Amended) The composition of claim 98, wherein ~~in which~~ said delivery vehicle is an autologous erythrocyte.

101. (Currently Amended) The composition of claim 66, wherein the administration is ~~which is formulated for~~ systemic ~~delivery~~.

102. (Currently Amended) The composition of claim 66, wherein the administration is ~~which is formulated for~~ intradermal ~~delivery~~.

103. (Currently Amended) The composition of claim 66, wherein the administration is ~~which is formulated for~~ subcutaneous ~~delivery~~.

104. (Cancelled)

105. (Currently Amended) The composition of claim 66, wherein the administration is ~~which is formulated for~~ mucosal ~~delivery~~.

106. (Previously Presented) The composition of claim 95, wherein the administration is selected from the group consisting of mucosal, nasal, oral, vaginal, rectal, intramuscular, subcutaneous, intradermal, systemic, and local administration.

107. (Currently Amended) The composition of claim 106, wherein the administration is ~~by~~ systemic ~~delivery~~.

108. (Currently Amended) The composition of claim 106, wherein the administration is ~~by~~ intradermal ~~delivery~~.

109. (Currently Amended) The composition of claim 106, wherein the administration is ~~by~~ subcutaneous ~~delivery~~.

110. (Previously Presented) The composition of claim 109 which further comprises Alum.

111. (Currently Amended) The composition of claim 106, wherein the administration is ~~by~~ mucosal ~~delivery~~.

112. (Currently Amended) The composition of ~~claims~~ claim 62, 63, 65, or 69, ~~in which~~ wherein said ~~biologically active~~ isolated Tat protein, fragment or mutant~~, or combination thereof,~~ is conjugated to a T-helper peptide or T-helper universal epitope of Tetanus Toxoid.

113. (Cancelled)

114. (Currently Amended) The composition of claim ~~113~~ 62, 63, 65, or 69, ~~in~~ which further comprises ~~said~~ HIV ~~antigen is~~ rev, nef or gag, or an immunogenic fragment thereof.

115. (Cancelled)

116. (Currently Amended) The composition of claim ~~115~~ 62, 63, 65, or 69, ~~in~~ which further comprises an ~~said~~ immuno-modulant ~~molecule is a~~ cytokine.

117. (Currently Amended) The composition of claim 116, ~~in which~~ wherein said immuno-modulant cytokine is IL-12 or IL-15.

118. (Cancelled)

119. (Currently Amended) The composition of claim ~~118~~ 62, 63, 65, or 69, ~~in which~~ wherein said isolated Tat protein, fragment or mutant is fused to HIV ~~antigen is~~ rev, nef or gag, or an immunogenic fragment thereof.

120. (Cancelled)

121. (Currently Amended) The composition of claim ~~120~~ 62, 63, 65, or 69, ~~in which~~ wherein said isolated Tat protein, fragment or mutant is fused to an immuno-modulant ~~protein is a~~ cytokine.

122. (Currently Amended) The composition of claim 121, ~~in which~~ wherein said immuno-modulant cytokine is IL-12 or IL-15.

123. (Previously Presented) The composition of claim 62, 63, 65, or 69, which further comprises an inhibitor of viral replication.

124. (Withdrawn -- Currently Amended) The composition of claim 62, 63, or 69, wherein said isolated Tat protein, fragment or mutant is ~~which comprises~~ a ~~biologically active isolated~~ Tat mutant ~~Tat protein~~.

125. (Withdrawn -- Currently Amended) The composition of claim 124, wherein the amino acid sequence of said ~~biologically active isolated~~ Tat mutant ~~Tat protein~~ consists of SEQ ID NO. 7, 8, ~~9, or 10~~ or 9.

126. (Withdrawn -- Currently Amended) The composition of claim 125, wherein the amino acid sequence of said ~~biologically active isolated~~ Tat mutant ~~Tat protein~~ consists of SEQ ID NO. 7.

127. (Currently Amended) The composition of claim 62, 63, or 69, wherein said isolated Tat protein, fragment or mutant is ~~which comprises~~ a ~~biologically active isolated~~ Tat fragment ~~of a Tat protein~~.

128. (Currently Amended) The composition of claim 127, wherein the amino acid sequence of said ~~biologically active isolated~~ Tat fragment consists of SEQ ID NO. ~~11, 12, 13, 14, 15, 16,~~ 16 or 17.

129-141. (Cancelled)

142. (New) The composition of claim 62 which comprises a combination of said isolated Tat protein, fragment and mutant.

143. (New) The composition of claim 62 or 63 which is suitable for inducing an immune response in the human to said isolated Tat protein, fragment or mutant.

144. (New) The composition of claim 65, wherein said wild type Tat protein is purified.

145. (New) The composition of claim 92, wherein said wild type Tat protein is purified.

146. (New) The composition of claim 62, wherein said isolated Tat protein, fragment or mutant is biologically active, as shown by the ability of said isolated Tat protein, fragment or mutant to

(iii) activate virus replication when said isolated Tat protein, fragment or mutant is added to HIV-1 infected cells at a concentration of up to 1 μg/ml, which activation is determined by (a) the rescue of Tat-defective proviruses in HLM-1 cells after the addition of said isolated Tat protein, fragment or mutant, or (b) the transactivation of HIV-1 gene expression in cells transfected with a HIV-1 promoter-reporter plasmid.

147. (New) The composition of claim 146, wherein the isolated Tat protein, fragment or mutant is a wild type Tat protein.

148. (New) The composition of claim 147, wherein said wild type Tat protein is purified.

149. (New) The composition of claim 147, wherein the amino acid sequence of said wild type Tat protein consists of SEQ ID NO. 2.

150. (New) The composition of claim 149, wherein said wild type Tat protein is purified.

151. (New) The composition of claim 146, 147, 148, or 150 which further comprises an adjuvant.

152. (New) The composition of claim 146, 147, 148, or 150, wherein the administration is intradermal.

153. (New) The composition of claim 146, 147, 148, or 150, wherein the administration is subcutaneous.

154. (New) The composition of claim 153 which further comprises Alum.

155. (New) The composition of claim 62, wherein said isolated Tat protein, fragment or mutant is biologically active, as shown by the ability of said isolated Tat protein, mutant, or fragment to

(i) become internalized by activated endothelial cells or dendritic cells, which internalization is determined by (a) incubating activated endothelial cells or dendritic cells with up to 1 μg/ml of said isolated Tat protein, fragment or mutant which is labeled with rhodamine, and (b) detecting the presence or absence of rhodamine in the activated endothelial cells or dendritic cells by fluorescence microscopy; and

(ii) activate the proliferation, migration, and invasion of Kaposi's sarcoma (KS) cells or cytokine-activated endothelial cells in culture when said isolated Tat protein, fragment or mutant is present at a concentration of up to 1 μg/ml; and

(iii) activate virus replication when said isolated Tat protein, fragment or mutant is added to HIV-1 infected cells at a concentration of up to 1 μg/ml, which activation is determined by (a) the rescue of Tat-defective proviruses in HLM-1 cells after the addition of said isolated Tat protein, fragment or mutant, or (b) the transactivation of HIV-1 gene expression in cells transfected with a HIV-1 promoter-reporter plasmid.

156. (New) The composition of claim 155, wherein the isolated Tat protein, fragment or mutant is a wild type Tat protein.

157. (New) The composition of claim 156, wherein said wild type Tat protein is purified.

158. (New) The composition of claim 156, wherein the amino acid sequence of said wild type Tat protein consists of SEQ ID NO. 2.

159. (New) The composition of claim 158, wherein said wild type Tat protein is purified.

160. (New) The composition of claim 155, 156, 157, or 159 which further comprises an adjuvant.

161. (New) The composition of claim 155, 156, 157, or 159, wherein the administration is intradermal.

162. (New) The composition of claim 155, 156, 157, or 159, wherein the administration is subcutaneous.

163. (New) The composition of claim 162 which further comprises Alum.

164. (New) The composition of claim 62 or 63, wherein said isolated Tat protein, fragment or mutant comprises the cysteine rich region of Tat and is in a non-oxidated form.

165. (New) The composition of claim 92, wherein said wild type Tat protein is in a non-oxidated form.

166. (New) The composition of claim 126, wherein said Tat mutant is in a non-oxidated form.

167. (New) The composition of any of claims 147-150, wherein said wild type Tat protein is in a non-oxidated form.

168. (New) The composition of any of claims 156-159, wherein said wild type Tat protein is in a non-oxidated form.

169. (New) The composition of claim 146, wherein the isolated Tat protein, fragment or mutant is a Tat mutant.

170. (New) The composition of claim 169, wherein said Tat mutant is purified.

171. (New) The composition of claim 169, wherein the amino acid sequence of said Tat mutant consists of SEQ ID NO. 7.

172. (New) The composition of claim 171, wherein said Tat mutant is purified.

173. (New) The composition of any of claims 169-172, wherein said Tat mutant is in a non-oxidated form.

174. (New) The composition of claim 155, wherein the isolated Tat protein, fragment or mutant is a Tat mutant.

175. (New) The composition of claim 174, wherein said Tat mutant is purified.

176. (New) The composition of claim 174, wherein the amino acid sequence of said Tat mutant consists of SEQ ID NO. 7.

177. (New) The composition of claim 176, wherein said Tat mutant is purified.

178. (New) The composition of any of claims 174-177, wherein said Tat mutant is in a non-oxidated form.

179. (New) A composition comprising: an isolated Tat protein, fragment or mutant in combination with a suitable excipient and/or diluent, wherein said isolated Tat protein, fragment or mutant comprises the cysteine rich region of Tat and is in a non-oxidated form, wherein said composition is suitable for administration to a human.

180. (New) The composition of claim 179, wherein the isolated Tat protein, fragment or mutant is a wild type Tat protein.

181. (New) The composition of claim 180, wherein said wild type Tat protein is purified.

182. (New) The composition of claim 180, wherein the amino acid sequence of said wild type Tat protein consists of SEQ ID NO. 2.

183. (New) The composition of claim 182, wherein said wild type Tat protein is purified.

184. (New) The composition of claim 179, 180, 181, or 183 which further comprises an adjuvant.

185. (New) The composition of claim 179, 180, 181, or 183, wherein the administration is intradermal.

186. (New) The composition of claim 179, 180, 181, or 183, wherein the administration is subcutaneous.

187. (New) The composition of claim 186 which further comprises Alum.

188. (New) The composition of claim 179, wherein said isolated Tat protein, fragment or mutant is conjugated to a T-helper peptide or T-helper universal epitope of Tetanus Toxoid.

189. (New) The composition of claim 179, which further comprises HIV rev, nef or gag, or an immunogenic fragment thereof.

190. (New) The composition of claim 179, which further comprises an immuno-modulant cytokine.

191. (New) The composition of claim 190, wherein said immuno-modulant cytokine is IL-12 or IL-15.

192. (New) A composition comprising an isolated Tat mutant in combination with a suitable excipient and/or diluent, wherein said isolated Tat mutant is in a non-oxidated form, wherein said Tat mutant consists of SEQ ID NO. 7, and wherein said composition is suitable for administration to a human.